

Appl. No. : 09/747,002  
Filed : December 22, 2000

### REMARKS

The foregoing amendments and the following remarks are responsive to the July 14, 2004 Office Action. Claims 1-16 are cancelled without prejudice, and Claims 17-29 are added. Thus, Claims 17-29 are presented for further consideration. Please enter the amendments and reconsider the claims in view of the following remarks.

#### **Comments on Amendments to the Specification**

As described herein, Applicant has amended the paragraph beginning on page 7, line 16 by replacing the word "then" with the word --than--. This amendment corrects an inadvertent typographical error, and Applicant submits that no new matter has been added to the present application. Applicant respectfully requests that the Examiner enter the amendment to the specification.

#### **Response to Rejection of Claims 1-16 Under 35 U.S.C. § 102(b)**

In the July 14 2004 Office Action, the Examiner rejects Claims 1-16 as being anticipated by U.S. Patent No. 6,134,384 issued to Okamoto et al. ("Okamoto"). As described herein, Applicant has cancelled Claims 1-16 without prejudice and has added new Claims 17-29.

#### **Comments on New Claims 17-29**

##### Claim 17

As described herein, Applicant has added new Claim 17 which recites (emphasis added):

17. A method of storing a video data stream on a **hard disk drive (HDD) for efficient, non-sequential access** to the stored stream of video data, the HDD having a plurality of sectors, each sector having a first integer of user data bytes, **the HDD addressable on sector boundaries for non-sequential access**, the video data stream including a sequence of original transport packets, each original transport packet having a second integer of bytes, the second integer of bytes different from the first integer of user data bytes, wherein a third integer of original transport packets are storable in a fourth integer of sectors, the fourth integer being a minimum number of sectors with the same number of user data bytes as the number of bytes of the third integer of original transport packets, the method comprising:

- receiving the sequence of original transport packets;
- adding a fifth integer of bytes to each original transport packet to create a sequence of modified transport packets, each modified transport packet having a sixth integer of bytes; and
- storing the sequence of modified transport packets on the HDD, wherein a seventh integer of modified transport packets are stored in an eighth integer of sectors, the eighth integer being a minimum number of sectors with the same number of user data bytes as the number of bytes in

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the seventh integer of modified transport packets, the eighth integer of sectors smaller than the fourth integer of sectors.

As disclosed by the present application at page 2, lines 1-19, the HDD may be included in a digital video recorder (DVR) in which the HDD (emphasis added):

includes several platters, wherein each platter records information in concentric circles called tracks. Each track is further broken down into smaller units called sectors, each of which may hold 512 bytes of data. ... **The DVR reads from the HDD in continuous groups of sectors called clusters, wherein the HDD is addressable on sector boundaries.**

As further disclosed by the present application at page 6, lines 6-12, in certain embodiments, a DVR utilizes the invention recited by Claim 17 in which (emphasis added):

**The first byte of a modified transport packet therefore aligns more often with the first byte of a sector so that the system 1 can more efficiently access the video data stored on the storage medium 8. This enables in particular trick play functions of the system 1, e.g., Fast Forward, Reverse, Rewind, Skip and the like, to operate without loss of synchronization. When the system 1 uses, for example, a cluster size of three sectors, a start of a cluster is guaranteed to have the first byte of the modified transport packet align with the first byte of the sector.**

Furthermore, as explained by the present application at page 7, lines 16-25 (emphasis added):

**this alignment occurs more often than in a prior art system that stores the original transport packets 18. ... The more frequent alignment and the smaller cluster size in accordance with the present invention provides for more efficient access to the stored video data because the synchronization performance is improved and repeated re-locking of a decoder (e.g., a MPEG-2 decoder) is avoided. The system 1 in accordance with the present invention can access data that is of interest sooner than in a prior art system, namely after 3 sectors instead of 47 sectors.**

Thus, certain embodiments of the invention recited by Claim 17 advantageously configure the storage of video data among the sectors of the HDD to provide improved non-sequential access to the video data to enable "trick play" functions.

In contrast, Okamoto discloses an apparatus and method for using a rotating head magnetic tape system to record and/or reproduce a digital signal. As disclosed by Okamoto at column 3, line 25 - column 4, lines 39-42 and Figure 2, digital signal tracks are sequentially recorded on the magnetic tape as the magnetic tape passes by the rotating

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heads, and digital signal tracks are sequentially read from the magnetic tape as the magnetic tape passes by the rotating heads. Each track has a particular block data format, as disclosed by Okamoto at column 4, line 43 – column 6, line 54 and Figures 3-15.

Okamoto does not disclose the HDD or the sectors as recited by Claim 17. Furthermore, Okamoto discloses a sequential access magnetic tape system and method, rather than the non-sequential access HDD system and method of the present application.

Applicant submits that Okamoto does not disclose all the limitations of Claim 17, so Claim 17 is patentably distinguished over Okamoto. Applicant respectfully requests the Examiner to consider the allowability of Claim 17.

#### Claims 18-25

Each of Claims 18, 20, and 22-25 depends from Claim 17, Claim 19 depends from Claim 18, and Claim 21 depends from Claim 20. Therefore, each of Claims 18-25 includes all the limitations of Claim 17, as well as other limitations of particular utility. For the reasons discussed above regarding Claim 17, Applicant submits that Claims 18-25 are patentably distinguished over Okamoto. Applicant respectfully requests the Examiner to consider the allowability of Claims 18-25.

#### Claim 26

As described herein, Applicant has added new Claim 26 which recites (emphasis added):

26. A system for storing video data for efficient, non-sequential access to the stored video data, the system comprising:

a receiver configured to receive a stream of video data that includes a sequence of original transport packets, wherein each original transport packet has a first predetermined number of bytes;

a first circuit configured to add a second predetermined number of bytes to each original transport packet to create a modified transport packet having a third predetermined number of bytes; and

a hard disk drive (HDD) configured to receive and store each modified transport packet, wherein the HDD is addressable on sector boundaries, each sector having a predetermined number of user data bytes different from the first predetermined number of bytes, wherein:

the first byte in an original transport packet aligns with a first user data byte in a sector after a first predetermined number of sectors following a previous alignment; and

the first byte in a modified transport packet aligns with a first user data byte in a sector after a second predetermined number

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of sectors following a previous alignment, wherein the second predetermined number of sectors is less than the first predetermined number of sectors.

For the reasons discussed above in relation to Claim 17, Applicant submits that Claim 26 is patentably distinguished over Okamoto. Applicant respectfully requests the Examiner to consider the allowability of Claim 26.

Claims 27-29

Each of Claims 27 and 28 depends from Claim 26, and Claim 29 depends from Claim 28. Therefore, each of Claims 27-29 includes all the limitations of Claim 26, as well as other limitations of particular utility. For the reasons discussed above regarding Claim 26, Applicant submits that Claims 27-29 are patentably distinguished over Okamoto. Applicant respectfully requests the Examiner to consider the allowability of Claims 27-29.

**Summary**

For the reasons stated above, Applicant submits that Claims 17-29 are in condition for allowance, and Applicant respectfully requests such action.

Respectfully submitted,

Dated: 1/7/05

By: 

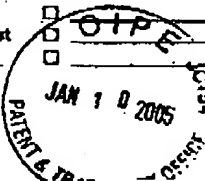
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UTILITY/DESIGN PATENT  
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Docket #: K35A01871/UM/171-2001 Applicant: William D. Boyle  
Title: METHOD AND APPARATUS FOR STORING A STREAM OF VIDEO DATA ON  
App No.: 09/747,002 Filed: 12-22-00  
VERIFIED BY: Asst: Sam Atty: BS1 QC: WAG

- ☒ Transmittal Letter  
☒ Amendment in 9 pgs  
☒ 3 Month Extension Requested  
☐ Information Disclosure Statement; with PTO-1449 w/        Ref(s)  
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(7/14/03)